COK- Richton Park

Illinois Institute of Natural Resources

State Water Survey Division

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July 31, 1981

Mr. A. Douglas Fenske
Village Manager
4455 Sauk Trail
Richton Park, IL 60471

Dear Doug:

Attached is a brief report on the shallow dolomite groundwater resource in the Richton Park Area. In addition to the typed report, I am including a tabulation of municipal pumpage in the area; hydrographs of observation wells at Chicago Heights and Homewood and of Wells 2 and 3 at Richton Park; and a sketch map of Rich Township showing municipal pumpage per square mile.

The shaded sections represent the pumpage for Richton Park.

Very truly yours,
ILLINOIS STATE WATER SURVEY

RTS

Robert T. Sasman
Head of Groundwater
Field Office
Phone: (312) 393-1607

RTS:kjb

SHALLOW GROUNDWATER RESOURCES IN THE VICINITY OF RICHTON PARK COOK COUNTY

By

Robert T. Sasman, Hydrologist

The village of Richton Park and each of the adjacent communities, as well as all the private, domestic and commercial wells in the area, obtain all of their water from the shallow dolomite aquifer. Most of the wells have depths of approximately 300 to 500 feet. Water is present in cracks and crevices in the rock and well yields are largely govered by the extent and interconnection of crevices encountered during drilling. Most of the municipal wells yield several hundred gallons per minute.

Recharge to the shallow dolomite is from precipitation that falls locally and percolates downward through the overlying surficial deposits. Previous studies by the Water Survey indicate that average recharge rates to the shallow dolomite in the Richton Park area are in the range of 100,000 to 150,000 gallons per day per square mile.

The combined municipal pumpage of Richton Park, Matteson and Park Forest has increased from 3.1 million gallons per day (mgd) in 1970 to 4.7 mgd in 1980. Most of the 1980 pumpage was for Park Forest but the rate of pumpage growth has been much greater in the other communities. Wells serving these municipalities are largely concentrated in the southeast quarter of Rich Township (T. 35N., R. 13E.). The potential yield of the shallow dolomite in Rich Township has been calculated to be approximately 4.6 mgd. Total 1980 municipal pumpage was 5.6 mgd or about 20 percent greater than the potential yield. In several areas of the Chicago metropolitan

region where pumpage has exceeded the potential yield for extended periods, water levels have declined below the top of the dolomite aquifer and some well yields have decreased as much as 50 to 60 percent.

Trends in water levels in wells provide good indicators of the effects of pumpage and may indicate the potential for loss of well capacity. The nonpumping water levels for Richton Park Well No. 3 appear reasonable, fluctuating between 39 and 45 feet since 1974. The water levels have been somewhat lower during the past two years. Some variations between readings are to be expected, depending on weather conditions, pump operating cycle and time of reading. It appears that the pumping gage reading and depth to water figures are reversed for the period January 21, 1980 to November 10, 1980.

For Well No. 2, some of the nonpumping water level data show variations which raise questions as to their reliability (January 21, 1980 to June 18, 1981). The operation of the air compressor on July 17 seems to indicate that it may not have been providing sufficient pressure to obtain an accurate reading. Pumping level data appear to be in the appropriate range. Verification of nonpumping water levels using adequate air pressure is necessary to determine present conditions.

The steel tape measurements obtained at Well No. 1 on July 17: depth to nonpumping water levels of 58.2 feet and pumping water levels of 76.6 feet, (at about 550 gallons per minute) indicate no loss of well capacity. A 39 foot nonpumping level in 1961 would suggest a water level decline of one foot per year for the past 20 years. Water level declines in the range of 1½ to 2 feet per year have been observed in some dolomite wells in areas of heavy concentrated pumpage.

Attached are hydrographs of dolomite wells at Chicago Heights and

and Homewood which have served as observation wells for more than 15 years. The water levels at Chicago Heights continue a gradual downward trend, even though municipal pumpage from the dolomite has decreased during the past ten years. Pumpage has shifted from the old main pumping station on the east side to more widely spaced wells on the west side, which are closer to the observation well.

Dolomite pumpage at Homewood and Flossmoor has declined about 50 percent as those communities have increased pumpage from deep sandstone wells. The Homewood hydrograph clearly reflects this change.

As Lake Michigan water actually becomes available to additional communities in south Cook County, pumpage from both shallow and deep wells will decline in proportion to the increased use of lake water. The optimum groundwater useage should equal the aquifer potential yield. Water levels would then stabilize and primarily reflect only cyclic operations and variations in weather conditions.

In summary, it appears as though there has been no significant change in the capability of the shallow dolomite to provide adequate water for Richton Park. Continued heavy and increasing pumpage, particularly to the east, could influence the supply in the future. If one or more of the nearby communities shift to lake water, at least part of that decreased demand on the dolomite could be utilized by Richton Park.

1980 Shallow Dolomite Pumpage
in Rich Township
(millions of gallons per day)

Section 6					Section 1
					.38
	.19	.16		.61	
		.12	.49	.10	
			.53	.34	2.16
Section 31		.27		.05	.21